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Amend claims 1, 2, 4 to 8, 10, 11 and 14, as follows:

1. (Amended) A method for [obtaining a correction factor for] determining the response of a gas-in-liquid concentration measurement device when measuring a concentration of a gas in a liquid when the gas is at a concentration in the liquid above the solubility threshold [using a gas in liquid concentration measurement device], the method comprising:

obtaining the solubility threshold for the gas in the liquid;

ensuring that the device is calibrated for concentrations of about 0% of the gas in the liquid and about 100% of the gas;

using the device to conduct sufficient measurements of the gas concentration at known actual concentrations to permit generation of a first mathematical function representing device-measured concentrations versus actual [concentration] concentrations of the gas in the liquid below the solubility threshold of the gas in the liquid;

[using the measured concentrations and the solubility threshold to fully define the first function and deducing] applying the first mathematical function to deduce a theoretical device-response at about the solubility threshold; and

using the theoretical device-response at about the solubility threshold and the device calibrated response at 100% gas concentration to determine a second mathematical function representative of the response of the gas-in-liquid concentration measurement device when the concentration of gas is above the solubility threshold, the second mathematical function defining the device-measured concentration versus actual concentration for the region above the solubility threshold wherein the actual concentration includes the amount of gas that is solubilized in the liquid and the gas that is present in bubble state [; and

using the first function and the second function to generate the correction factor].

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2. (Amended) The method of claim 1 wherein sufficient measurements is one measurement between 0% concentration of the gas in the liquid and the concentration of the gas in the liquid at the solubility [limit] threshold.

4. (Amended) The method of claim 1 wherein the known actual gas concentrations are less than about half of the gas concentration at the solubility [limit] threshold.

5. (Amended) The method of claim 1 wherein the first mathematical function and the second mathematical function are each linear.

6. (Amended) The method of claim 1 [wherein the] further comprising generating a correction factor for use with the measurement device, the correction factor being [is] the difference between a value of the first mathematical function or the second mathematical function and an actual gas concentration corresponding to that value and the difference is recorded and applied to any device-measured concentrations corresponding to the value.

7. (Amended) The [he] method of claim 1 [wherein the] further comprising generating a correction factor for use with the measurement device, the correction factor being [is] generated as the inverse functions of the first mathematical function and the second mathematical function.

8. (Amended) A method for [obtaining a correction factor for] determining the response of a gas-in-liquid concentration measurement device when measuring a concentration of a gas in a liquid when the gas is at a concentration in the liquid above the solubility threshold [using a gas in liquid concentration measurement device], the method comprising:

obtaining the solubility threshold for the gas in the liquid;

ensuring that the device is calibrated for concentrations of about 0% of the gas in the liquid and about 100% of the gas;

using the device to conduct sufficient measurements of the gas concentration at known actual concentrations to permit generation of a first mathematical function representing

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device-measured concentration versus actual concentration of the gas in the liquid  
below the solubility threshold of the gas in the liquid;

determining a measured concentration at about the solubility threshold; and

using the measured concentration at about the solubility threshold and the device  
calibrated response at 100% gas concentration to determine a second mathematical  
function representative of the response of the gas-in-liquid concentration measurement  
device when the gas is in a bubble state in the liquid, the second mathematical function  
defining device-measured concentration versus actual concentration above the solubility  
threshold[; and using the first function and the second function to generate the  
correction factor].

10. (Amended) The method of claim 8 wherein the measured concentration at about the solubility threshold is determined [based on] by extrapolation of the first mathematical function.

11. (Amended) A method for preparing a concentration determining device for use to measure the concentration of a selected gas in a selected liquid, comprising:

obtaining a correction factor for measuring [a] the concentration of the selected gas in  
[a] the selected liquid [for] using the device by obtaining the solubility threshold for the  
selected gas in the selected liquid; ensuring that the device is calibrated for  
concentrations of about 0% selected gas in selected liquid and about 100% selected  
gas; using the device to conduct sufficient measurements of the gas concentration at  
known actual concentrations of the selected gas in the selected liquid to permit  
generation of a first mathematical function representing device-measured concentration  
versus actual concentration of the selected gas in the selected liquid below the solubility  
threshold; determining a measured concentration at about the solubility threshold; using  
the measured concentration at about the solubility threshold and the device calibrated  
response at 100% gas concentration to determine a second mathematical function  
representative of device-measured concentration versus actual concentration above the  
solubility threshold, wherein the actual concentration of the selected gas in the selected

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liquid includes an amount of solubilized gas and an amount of the gas in bubble state;  
and using the first mathematical function and the second mathematical function to  
generate the correction factor, the correction factor being one of (i) the difference  
between a value of the first mathematical function or the second mathematical function  
and an actual gas concentration corresponding to that value or (ii) the inverse functions  
of the first mathematical function and the second mathematical function; and

recording the correction factor for application to any device-measured results by the  
device.

14. (Amended) A method for determining a concentration of a selected gas in a  
selected liquid, the method comprising:

providing a device for determining gas-in-liquid [gas in liquid] concentrations;

using the device to obtain a concentration measurement of the selected gas in the  
selected liquid; and

applying a correction factor to the concentration measurement to produce an output  
concentration measurement of the selected gas in the selected liquid, the correction  
factor being obtained by using a device similar to the device for determining gas-in-  
liquid [gas in liquid] concentrations and obtaining the solubility threshold for the selected  
gas in the selected liquid; ensuring that the similar device is calibrated for  
concentrations of about 0% selected gas in selected liquid and about 100% selected  
gas; using the similar device to conduct sufficient measurements of the selected gas  
concentration at known actual concentrations to permit generation of a first  
mathematical function representing measured concentration versus actual  
concentration below the solubility threshold of the selected gas in the selected liquid;  
determining a measured concentration at about the solubility threshold; using the  
measured concentration at about the solubility threshold and the device calibrated  
response at about 100% selected gas concentration to determine a second  
mathematical function representative of measured concentration versus actual

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concentration above the solubility threshold, wherein the actual concentration of the selected gas in the selected liquid includes an amount of solubilized gas and an amount of the gas in bubble state; and using the first mathematical function and the second mathematical function to generate the correction factor, the correction factor being one of (i) the difference between a value of the first mathematical function or the second mathematical function and an actual gas concentration corresponding to that value or (ii) the inverse functions of the first mathematical function and the second mathematical function.

Add new claims 20 to 43, as follows:

--20. The method according to claim 1 wherein the device is a gas semipermeable membrane device.

21. The method of claim 8 wherein sufficient measurements is one measurement between 0% concentration of the gas in the liquid and the concentration of the gas in the liquid at the solubility threshold.

22. The method of claim 8 wherein sufficient measurements is at least two measurements.

23. The method of claim 8 wherein the known actual gas concentrations are less than about half of the gas concentration at the solubility threshold.

24. The method of claim 8 wherein the first mathematical function and the second mathematical function are each linear.

25. The method according to claim 8 wherein the device is a gas semipermeable membrane device.

26. The method of claim 11 wherein sufficient measurements is one measurement between 0% concentration of the selected gas in the selected liquid and the concentration of the selected gas in the selected liquid at the solubility threshold.

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27. The method of claim 11 wherein sufficient measurements is at least two measurements.

28. The method of claim 11 wherein the known actual concentrations are less than about half of the gas concentration at the solubility threshold.

29. The method of claim 11 wherein the first mathematical function and the second mathematical function are each linear.

30. The method of claim 11 wherein the measured concentration at about the solubility threshold is determined by extrapolation of the first mathematical function.

31. The method of claim 11 wherein the measured concentration at about the solubility threshold is obtained using the device.

32. The method according to claim 11 wherein the concentration determining device is a gas membrane device.

33. The method of claim 14 wherein sufficient measurements is one measurement between 0% concentration of the selected gas in the selected liquid and the concentration of the selected gas in the selected liquid at the solubility threshold.

34. The method of claim 14 wherein sufficient measurements is at least two measurements.

35. The method of claim 14 wherein the known actual concentrations are less than about half of the gas concentration at the solubility threshold.

36. The method of claim 14 wherein the first mathematical function and the second mathematical function are each linear.

37. The method of claim 14 wherein the measured concentration at about the solubility threshold is determined by extrapolation of the first mathematical function.

38. The method of claim 14 wherein the measured concentration at about the solubility threshold is obtained using the similar device.